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A protocol improves GP recording of long-term sickness absence risk factors

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Background If general practitioners (GPs) were better informed about patients' risks of long-term sickness absence (LTSA), they could incorporate these risk assessments into their patient management plans and cooperate more with occupational physicians to prevent LTSA.

Aim To evaluate the effectiveness of a protocol helping GPs in recording risks of LTSA and in co-operating with occupational physicians (OPs).

Methods Twenty-six GPs (co-operating in four groups) in Amsterdam, The Netherlands, participated in a controlled intervention study. Fourteen GPs were the protocol-supported intervention group and twelve GPs were the reference group. Outcome measures were consultations containing work-related information, information about two risk factors for LTSA, referrals to OPs and contacts of OPs with GPs and patients. Outcomes were identified through an electronic search in the GPs' information systems. Entries containing information were independently scored by two investigators. The proportions of patients with consultations documenting LTSA-pertinent items were compared between the groups, accounting for differences at baseline.

Results There was no increase in consultations containing work-related information. Recording of risk factor information increased in the intervention group; the difference was 4.5% [95% CI 1.5–7.6] and 1.8% (95% CI −0.8 to 4.4) for the two risk factors. The referral rate to the OP increased by 2.9% (95% CI 1.2–4.5). There was no effect on contacts of OPs with GPs or with patients.

Conclusion Protocol-supported consultations may lead to a modest increase in information regarding two risk factors for LTSA in GPs' electronic records and to more referrals to OPs.

Key words Family medicine; general practitioner; long-term sickness absence; risk factors; occupational health care; occupational physician; prevention.

Introduction

Long-term sickness absence (LTSA), defined as an absence from paid work of at least 3 months duration, causes loss of productivity and huge social benefit costs. In the UK, >30% of lost labour days and up to 75% of absence-related costs are caused by absence periods >6 months [1]. In the Netherlands, costs associated with social benefits due to permanent work disability >1 year were €10 billion (~£7 billion) in 2003 [2]. As from 2002, legislation in the Netherlands emphasizes intervention early on in periods of sickness absence, including the involvement of occupational health. Both employers and employees are required to contribute actively to prevention and reintegration, at the risk of being fined for non-compliance. This legislation seems to have been effective as the number of people claiming permanent work disability diminished by 17% between 2003 and 2005 [2].

Although these results are promising, 775 600 workers in the Netherlands still receive permanent work disability benefits. Additional strategies for early interventions may help to reduce the number of people needing to claim permanent disability benefits. One element of these additional strategies is greater commitment of general practitioners (GPs). For patients at risk for LTSA, GPs are often the first health care professionals with an opportunity to assess that risk [3]. At least in theory, GPs are in a position to modify this risk. For example, they may

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discuss the risk with patients, refer the patient to an occupational physician (OP) and in the case of actual sickness absence stimulate patients to be proactive in their reintegration process, monitor this process, exchange information with the OP and coordinate reintegration if applicable. Obviously, in order to perform these tasks, GPs need to be informed about the presence of risk factors for LTSA. Currently, this is often not the case. In previous work, we found that only 24% of the consultations with patients of working age contained work-related information, 9% contained information about sickness absence and ~5% contained information pertaining to LTSA risk [4]. Work and working conditions seem to be a 'blind spot' for GPs [5]. If GPs are to optimally fulfil their role, more comprehensive work-related information, including information about risks for LTSA, should be recorded by GPs.

In this paper, we have studied the extent to which the application of a protocol increased GP recording of work-related information. We also assessed the effects of the protocol on GP-to-OP referral rates and the numbers of GP–OP and patient–OP contacts.

Methods

We designed the study as a controlled intervention study. In 2000, we performed a literature search in PubMed and in the Dutch literature using different combinations of the search terms 'high risks', 'LTSA', 'prognostic factors', 'GP', 'indicators', 'absenteeism' and 'determinants'. We were interested in those risk factors for LTSA that can easily be detected in general practice, given GPs' relative lack of time and expertise. From the literature thus retrieved, and two references in particular, we concluded that a history of any sickness absence in the past and a patient's own expectation that the duration of sickness absence will be lengthy were likely to be strongly predictors of LTSA [6,7]. These two factors were implemented into a simple flow diagram (Figure 1). Although the literature on which we based the flow diagram is—at the time of writing—7 years old, more recent literature confirmed these two factors as important prognostic factors [8–14]. However, other studies indicate that various other factors are also associated with LTSA [1,10,11,15–20]. In the Netherlands, almost all GPs cooperate with each other in groups of about 8–12 GPs. The 44 GP groups in the Amsterdam region were sent written invitations to participate in the study. We asked them to choose between assignment to an intervention group or to the reference group. Eligibility depended on GPs' willingness to place their computer systems and electronic patient records (EPRs) at the disposal of the project team for outcome measurements. Assignment to the intervention group implied working according to the protocol for the period of a year. Members of this group received recertification points and after 6 months they could attend a workshop on new social benefits legislation that was organized by the authors (P.v.D. and W.H.). After sending out the written invitation, the GP practices were contacted by telephone, and on request, two authors (P.v.D. and W.H.) gave an additional explanation about the project and the protocol. A diagram was created for daily use by participating GPs on their desks. The investigators gave GPs in the intervention group feedback on their performance on the outcome measures at baseline and after 6 and 12 months.

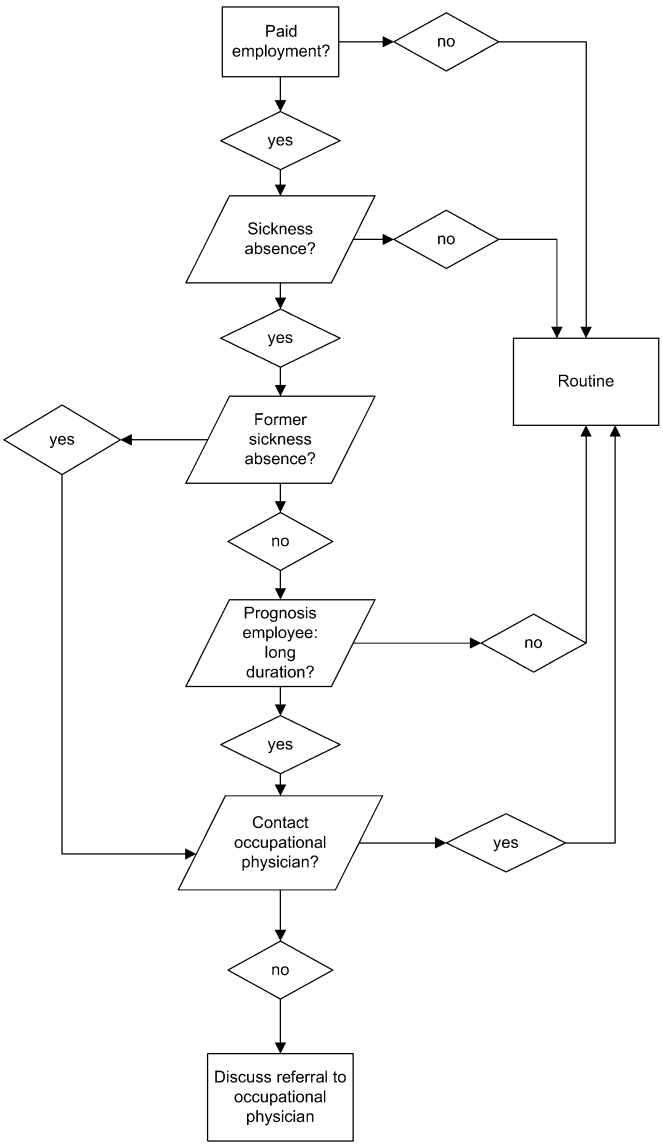

Figure 1. Flow diagram of a protocol for GPs to gather information about sickness absence to detect a high risk for LTSA.

The outcome measures were about recorded information in the EPR of the GPs and included the proportion of registered patients, aged 15–65, whose EPR contained information on their working status and the proportions with information about at least one of the four elements required by the protocol: current sickness absence, previous sickness absence, patients' own estimation of likely

absence duration and referral to an OP. Also, the proportions of patients' records containing information on contacts between OP and GP and between patient and OP were measured. GPs collected data using the EPR system Arcos (EuroNed Systems, Sittard, The Netherlands). We scanned EPR systems from 1 July 2000 to 1 July 2001 (pre-intervention baseline period) and from 1 September 2002 to 1 September 2003 (follow-up period). The EPR obviated the need for separate data registration. From the EPRs, we electronically selected the consultations from registered patients, aged 15–65, that contained the following words (in Dutch): work, employment, business, company, factory, trade union, sickness absence legislation, sickness absence, absent, boss, manager, working conditions, supervisor, human resource management department and personnel. In addition, we retrieved the consultations with International Classification of Primary Care codes Z05, 'problems with the work situation', and Z08, 'problems with social insurance'. All selected consultations were independently scrutinized by two members of the research team, including the authors P.v.D. and W.H., looking for the presence of information about the protocol items and contact with OPs. Consensus was achieved through discussion, if required. False-positive consultations were removed. For example, Dutch GPs may use the abbreviation 'ZW' (meaning 'pregnancy'), which is identical to ZW for ZiekteWet or Sickness Absence Act. To determine the sensitivity of our approach, we manually searched the EPRs of three GPs (two from the intervention group and one from the reference group) on all consultations that had not been selected by the electronic search, within the same period and in the same age group, counting all consultations with work-related information that had been overlooked in the electronic search.

The target population was the number of registered patients aged 15–65. Since only 70% of these visit their GP at least once a year [21] and 65% of all these patients have paid employment [22], we corrected the denominators of the proportions by a factor 0.7×0.65. The percentage of unemployment may be subject to some variation, but as the study population is representative of the Dutch population, the use of this national figure seems justified. Because the denominator fraction is subject to variation, we varied this in a sensitivity analysis using the factors 0.65 and 0.75. Random effects multivariable linear regression analysis was used to estimate the differences in the proportions of EPRs that contained protocol-specific information at 12 months. All analyses were adjusted for the values of the outcome measure at baseline. Data were analysed using Stata 9.2 (Stata Corp., College Station, TX, USA).

Results

Four GP groups, comprising 26 GPs, agreed to participate. Two groups opted for the intervention group (7 + 7 GPs) and two for the reference group (6 + 6 GPs). At baseline, one of the 'intervention' GPs was on long-term sick leave, so the data had partly been collected by a replacement. Another intervention GP had just started the job and the data had partly been collected by the predecessor. The mean number of years of experience as a GP in the intervention group was 14.9 years (range 6–21) and in the reference group was 11.1 years (range 7–16).

Results were obtained from all participating GPs. There was no loss to follow-up (Figure 2). In determining the sensitivity of our electronic search, the manual search of three GP practices for all consultations in the same age group and in the same period yielded 583 consultations that contained only seven additional work-related consultations. For instance, 'piano tuner' was mentioned, a term not included in our search terms. The sensitivity of our two-step search strategy was estimated as 98.3% [95% CI 96.5–99.2], and the specificity was 100%, as we removed all false positives.

The proportion of patients with records containing some work-related information did not increase in either group compared to the baseline values. With regard to recording at least one of the four protocol-specific items (sickness absence, previous sickness absence, prognosis and any referral to the OP versus none), the intervention effect was 15.5% (95% CI 7.0–24.1, $P < 0.001$) (Table 1). Information recorded regarding sickness absence increased by 7.5% (95% CI 3.1–11.8, $P < 0.01$) and information recorded regarding previous sickness absence increased by 4.5% (95% CI 1.5–7.6, $P < 0.01$) in the intervention group. Referrals to the OP increased by 2.9% (95% CI 1.2–4.5, $P < 0.01$) in the intervention group. Information about self-perceived prognosis and about contacts between GP and OP and patient and OP did not increase in either group (Table 1). Results of the two sensitivity analyses changed the size of these effects only marginally. Specifically, the outcome measure

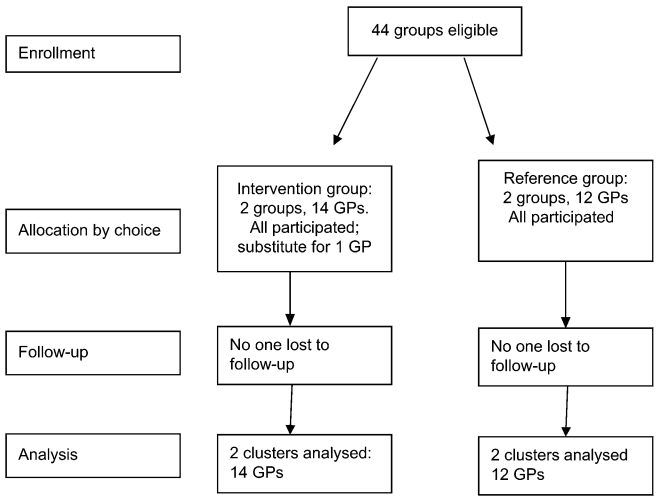

Figure 2. Flow diagram of GP clusters.

Table 1. Numbers of patients in the target group: patients, aged 15–65, visiting a GP and having paid work in both intervention and reference group[a]

Patients with information about		Intervention group			Reference group			Differences of proportions			
		Baseline period, *n* (%)	End follow-up period, *n* (%)	Difference, *n* (%)	Baseline period, *n* (%)	End follow-up period, *n* (%)	Difference, *n* (%)	Absolute difference	Adjusted difference	95% CI of adjusted difference	*P* value of adjusted difference
	Target group	6052	5960		5299	5075					
Work	Number	1743 (29)	2093 (35)	350 (6)	1211 (23)	1354 (27)	143 (4)	2.5	4.4	−4.9 to 13.8	0.35
At least one of the protocol items	Number	866 (14)	1236 (21)	370 (6)	523 (10)	558 (11)	35 (1)	5.3	15.5	7.0 to 24.1	<0.001***
Sickness absence	Number	717 (12)	1133 (19)	416 (7)	403 (8)	463 (9)	60 (1)	5.7	7.5	3.1 to 11.8	0.001**
Previous sickness absence	Number	47 (1)	290 (5)	243 (4)	24 (0)	33 (1)	9 (0)	3.9	4.5	1.5 to 7.6	<0.01**
Patient's self-perceived prognosis	Number	379 (6)	436 (7)	57 (1)	178 (3)	216 (4)	38 (1)	0.1	1.8	−0.8 to 4.4	NS
Referral to OP	Number	146 (2)	337 (6)	191 (3)	95 (2)	125 (2)	30 (1)	2.5	2.9	1.2 to 4.5	0.001**
Contact GP–OP	Number	60 (1)	117 (2)	57 (1)	51 (1)	70 (1)	19 (0)	0.6	0.5	−0.4 to 1.5	NS
Contact patient–OP	Number	351 (6)	353 (6)	2 (0)	210 (4)	233 (4)	23 (1)	-0.4	0.3	−3.4 to 4.1	NS

Numbers and proportions with work-related information and information about items specified in the protocol. Differences in proportions after linear regression analysis with 95% CI and *P* value. Adjustments were made for the values of the outcome measure at baseline. Difference = $(\text{follow-up minus baseline})_{\text{intervention}} - (\text{follow-up minus baseline})_{\text{reference}}$.

[a]As 65% of all patients 15–65 year have paid employment and 70% of the patients visit the GP once a year. Correction factors that were applied on the total covered population per GP.

'recording at least one of the protocol items' varied between 16.7 using 65% as the denominator and 14.5, using 75%.

Discussion

Use of the protocol lead to an increase of recorded information with GPs about two risk factors of LTSA and about referrals to the OP. The percentage of patients in whom information was recorded regarding at least one of the four protocol-specific items (sickness absence, previous sickness absence, prognosis and referral to the OP) increased in the intervention group by 16% compared to values at baseline. Information about sickness absence, previous sickness absence and referrals to the OP increased, respectively, by 7.5, 4.5 and 2.9%. Our search method in the EPR had a high sensitivity, and, as we removed all false positives, the specificity was 100%.

We therefore think a strong point in our study is this accuracy of data collection. Because the information is collected on patient level from their own registration system, GPs could consider this as trustworthy and practical feedback information in quality improvement programmes on this subject. There are three potential causes of bias. First, the study was performed among a small number of GPs and second, the selection was biased because those groups that were already interested in this subject participated. Third, the use of the adjustment factors (0.7 and 0.65 for the fractions of those registered who pay at least one visit per year and those who have paid employment, respectively), and their multiplication, is in particular associated with at least two assumptions. It assumes that those who visit at least once a year have the same probability of having paid employment as those who do not visit the GP. In other words, it assumes statistical independence between these phenomena. And it assumes that these two phenomena are balanced across the intervention and reference groups. The uncertainty about the exact magnitude of the most uncertain factor (the denominator) was accounted for in our sensitivity analysis. Our finding that the number of contacts between patient and OP did not increase is in contrast with the increased number of referrals to the OP in the intervention group, which may demonstrate that GPs are participating in contacts that already exist between patient and OP. Another explanation might be that many referrals do not need a follow-up contact with the GP or that successful patient–OP contacts are not known or not recorded by GPs. There exists an important difference with another study. Andrea *et al.* [3] found that almost 12% of 12 000 employees visited their GP in relation to work, we found that in 23–29% any information about work was recorded. This difference may be explained in two ways. First, there may be a lack of registration and second, there is an important difference in the data collection. 'Asking for work conditions' as we GPs asked to do in our study is different from asking employees to indicate whether they 'visited the GP in relation to work'.

The intervention intended to focus the attention of GPs on the problem of LTSA and to integrate this perspective into their treatment. One could also imagine other strategies of detecting high risks on LTSA in clinical practice. For instance, Durand *et al.* [23] developed the Work Disability Diagnosis Interview as an instrument for clinicians to assess prognostic factors in musculoskeletal pain patients. Though this seems a useful instrument, we think that GPs are most likely deterred by these kinds of comprehensive instruments from using them routinely in their, often hectic, daily practice. We recommend experiments implementing our 'easy to use' protocol on a larger scale, including training of GPs on this subject. In this training for GPs, special attention should be given to present legislation on the subject, to the consequences for patients and to conversation techniques. Emphasis should be laid on the treatment perspective when paying more attention to working conditions and sickness absence. A better cooperation with OPs could help to implement a more integrated approach to imminent LTSA. In general, GP organizations support improved collaboration with OPs [24,25].

A question to be answered is whether the way we collected the data, is useful and acceptable feedback information for GPs in further implementation of the protocol, and whether a more active approach of GPs in detecting high risk on LTSA contribute to a decrease of LTSA on the long run.

Further research, preferably using a randomized controlled trial design, combined with a well-designed intervention, should answer this last question.

Assuming that the increase in recorded information reflects actual practice, we conclude that use of this protocol increased the attention paid by GPs to high risks of LTSA and stimulated the cooperation with the OP. With more information about high risks on LTSA, treatment by GPs, in cooperation with OPs, could be more specific for those persons who are really at risk.

Key points

- A protocol for GPs to use during consultations resulted in better recording of risk factors of LTSA.
- The protocol resulted in more referrals to OPs.
- Applying this protocol may lead to more and better cooperation between GPs and OPs, which may contribute to a reduction in LTSA.

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Conflicts of interest

None declared.

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